

/792180.sch

Message 9:

From spo_patent@spo.eds.com Thu Jul 31 12:17:30 1997

Received: from pin1.spo.eds.com (www.spo.eds.com [192.238.49.35]) by pioneer.uspto.gov (8.7.4/8.7.3) with SMTP id MAA03168 for <mayasyst@pioneer.uspto.gov>; Thu, 31 Jul 1997 12:17:27 -0400 (EDT)

From: spo_patent@spo.eds.com

Received: by pin1.spo.eds.com (4.1/spo-1.5)

id AA15957; Thu, 31 Jul 97 11:15:54 CDT

Received: from spo.spo.eds.com by spo1.eds.com (4.1/SPOUUCP-1.8)

id AA01408; Thu, 31 Jul 97 11:12:37 CDT

Received: from spo4.spo.eds.com by spo.spo.eds.com (4.1/SPO-2.5)

id AA11426; Thu, 31 Jul 97 11:12:35 CDT

Date: Thu, 31 Jul 97 11:12:35 CDT

X-Disclaimer: This e-mail is not an official business record of EDS.

To: mayasyst@pioneer.uspto.gov

Sender: spo_patent@spo.eds.com

Subject: Re: 792180.sch

X-Mailer: SPO Mail

Mime-Version: 1.0

Message-Id: <19970731_110720_spo_11376>

Content-Type: text/plain; charset=us-ascii

Status: RO

CUSTOMER REQUEST SUMMARY

Your request was:

>e003

>

>Word frequency list for document 792180

>

>---search-id---

>792180, huang sihong

>---search-id---

>

>---keywords---

>vehicle seat weight detect

>air bag safety device

>magnet

>---keywords---

>

>---word freq---

> 2 above

1 absence

1 abstract

> 4 accordance

1 active

2 actuation

> 1 actuator	4 adjacent	1 adults
> 1 affects	1 after	1 again
> 1 aging	5 air	8 airbag
> 1 all	1 along	2 also
> 1 alter	1 alters	14 and
> 1 any	1 app	5 approach
> 1 are	5 art	1 available
> 1 background	2 bag	1 been
> 2 being	1 below	1 between
> 6 bladder	2 both	1 brccd
> 1 can	1 capable	1 carlsm
> 1 carseats	1 caused	4 change
> 3 changes	1 children	1 circuitry
> 1 close	10 coil	1 comparison
> 1 component	2 comprises	1 consistent
> 2 constraints	1 contained	2 controlling
> 1 correlated	1 correlates	2 cost
> 1 crash	2 current	3 cushion
> 1 danger	1 dangerous	1 degrade
> 1 described	4 design	1 detect
> 5 detected	4 detecting	1 detection
> 1 determining	1 develop	2 device
> 1 disable	2 disabled	1 disadvantages
> 1 disclosure	1 documented	1 does
> 1 driver	1 each	1 effect
> 1 either	3 elastic	3 electromagnet
> 4 electromotive	11 element	1 embedded
> 1 enabled	1 example	1 exceed
> 1 exceeds	4 exciting	1 falls
> 2 feffomagnetic	11 ferromagnetic	11 field
> 1 finally	2 first	2 fluid
> 11 for	4 force	1 forward
> 1 frequency	2 from	1 front
> 2 function	4 further	1 generate
> 1 generates	5 generating	2 generator
> 1 given	1 grid	3 grids
> 1 has	1 have	1 having
> 2 imposes	2 improved	1 include
> 5 includes	2 including	1 incorporated
> 1 increase	2 indicating	1 indication
> 1 individual	1 induce	3 induced
> 1 inductor	1 infants	1 influenced
> 1 information	5 invention	1 inverse
> 1 its	2 known	1 limited
> 2 loading	1 located	1 low

> 1 lower	5 magnet	10 magnetic
> 1 magnetostrictive	3 manner	1 manufacture
> 1 manufacturers	1 manufacturing	6 may
> 3 measure	1 measurements	1 mechanical
> 1 mentioned	2 method	2 mode
> 1 moreover	4 motor	3 mounted
> 1 needed	1 nominal	1 not
> 3 object	1 obtained	1 one
> 1 operation	1 oscillating	1 otherwise
> 1 output	1 over	1 overcomes
> 1 pair	11 passenger	1 passive
> 1 performance	1 permanent	6 person
> 2 piezoresistive	1 placed	1 poses
> 1 position	1 positioned	1 predetermined
> 2 preferably	1 presence	3 present
> 5 pressure	5 prior	1 processing
> 4 processor	1 produces	1 profile
> 1 propagation	2 properties	2 proportional
> 1 provide	2 provides	1 providing
> 1 readily	1 rear	1 receives
> 1 receiving	1 reduced	1 reduction
> 1 relates	2 relative	1 reliability
> 1 reliable	5 representative	1 represented
> 3 resistance	2 resolution	2 responsive
> 2 resulting	2 roughly	4 safety
> 18 seat	5 seated	2 second
> 1 senses	7 sensor	3 sensors
> 2 serves	2 side	10 signal
> 1 sinusoid	1 sitting	1 situated
> 2 small	1 sought	1 spacing
> 1 specifically	8 strain	2 structure
> 4 substantial	10 such	1 suffers
> 1 sufficient	1 suitable	1 summary
> 1 superimposed	1 surface	1 susceptibility
> 13 system	1 systems	1 techniques
> 2 temperature	5 that	119 the
> 1 then	2 thereby	1 therein
> 1 thereupon	6 thing	6 this
> 3 threshold	2 through	1 time
> 1 too	1 trigger	1 turn
> 1 two	1 unacceptable	2 under
> 2 unfortunately	5 upon	3 use
> 2 used	2 useful	3 variation
> 2 variations	1 vary	20 vehicle
> 1 vehicles	1 villari	4 voltage

> 1 waves 18 weight 4 well
 > 1 what 1 when 1 where
 > 7 which 2 while 1 whom
 > 1 will 2 wire 11 with
 > 12 within 2 would
 >---word freq---
 >
 >---number returned---
 >50
 >---number returned---
 >
 >---output options---
 >abstracts
 >field of search 10
 >titles
 >---output options---
 >

Sales Order Summary:

Customer ID: 681
 Sales Transaction Nbr: 55889
 Date Posted: July 31, 1997
 Product: E003
 Quantity: 50

E003 WORD FREQUENCY SEARCH REPORT

Classification Analysis:

1. 280/735 Total=30 ORs=16 XRs=14
 - Class 280 LAND VEHICLES
 - Sub 29 WHEELED
 - Sub 727 .Attachment
 - Sub 728.1 ..Inflatable passenger restraint or confinement
 (e.g., air bag) or attachment
 - Sub 734 ...Responsive to vehicle condition
 - Sub 735 Electric control and/or sensor means

2. 280/730.1 Total=10 ORs=5 XRs=5
 - Class 280 LAND VEHICLES
 - Sub 29 WHEELED
 - Sub 727 .Attachment
 - Sub 728.1 ..Inflatable passenger restraint or confinement
 (e.g., air bag) or attachment

- Sub 730.1 ...Inflated confinement specially positioned
relative to occupant or conforming to the body
shape of occupant
3. 180/282 Total=9 ORs=1 XRs=8
Class 180 MOTOR VEHICLES
Sub 271 WITH MEANS FOR PROMOTING SAFETY OF VEHICLE, ITS
OCCUPANT OR LOAD, OR AN EXTERNAL OBJECT
Sub 282 .Responsive to sensing of acceleration,
deceleration, or tilt of vehicle
4. 180/273 Total=8 ORs=0 XRs=8
Class 180 MOTOR VEHICLES
Sub 271 WITH MEANS FOR PROMOTING SAFETY OF VEHICLE, ITS
OCCUPANT OR LOAD, OR AN EXTERNAL OBJECT
Sub 272 .Responsive to absence or inattention of operator,
or negatively reactive to attempt to operate
vehicle by person not qualified mentally or
physically to do so
Sub 273 ..Utilizing weight, or lack thereof, of operator on
seat or other support to determine presence or
absence
5. 307/10.1 Total=8 ORs=1 XRs=7
Class 307 ELECTRICAL TRANSMISSION OR INTERCONNECTION SYSTEMS
Sub 9.1 VEHICLE MOUNTED SYSTEMS
Sub 10.1 .Automobile
6. 180/268 Total=7 ORs=0 XRs=7
Class 180 MOTOR VEHICLES
Sub 268 WITH BELT OR HARNESS FOR RESTRAINING OCCUPANT, AND
MEANS WHEREBY THE BELT OR HARNESS CONTROLS, OR IS
CONTROLLED BY, THE FUNCTIONING OF A VEHICLE SYSTEM
OR COMPONENT
7. 280/806 Total=6 ORs=2 XRs=4
Class 280 LAND VEHICLES
Sub 29 WHEELED
Sub 727 .Attachment
Sub 801.1 ..Safety belt or harness (e.g., lap belt or shoulder
harness)
Sub 806 ...Inertia responsive locking or tightening of belt
or harness
8. 364/424.055 Total=5 ORs=4 XRs=1

Class 364 ELECTRICAL COMPUTERS AND DATA PROCESSING SYSTEMS
Sub 400 APPLICATIONS
Sub 423.098 .Vehicle control, guidance, operation, or indication
Sub 424.045 ..Vehicle subsystem or accessory control
Sub 424.055 ...Control of vehicle safety devices (e.g., airbag,
seat-belt, etc.)

9. 180/274 Total=4 ORs=1 XRs=3
Class 180 MOTOR VEHICLES
Sub 271 WITH MEANS FOR PROMOTING SAFETY OF VEHICLE, ITS
OCCUPANT OR LOAD, OR AN EXTERNAL OBJECT
Sub 274 .Responsive to engagement of portion of perimeter of
vehicle with external object

10. 280/732 Total=4 ORs=0 XRs=4
Class 280 LAND VEHICLES
Sub 29 WHEELED
Sub 727 .Attachment
Sub 728.1 ..Inflatable passenger restraint or confinement
(e.g., air bag) or attachment
Sub 732 ...Deflated confinement located in or on instrument
panel

11. 340/436 Total=4 ORs=1 XRs=3
Class 340 COMMUNICATIONS: ELECTRICAL
Sub 425.5 LAND VEHICLE ALARMS OR INDICATORS
Sub 436 .Of collision or contact with external object

Patent Report:

Ref Patent Id Issue/File US Class (OR) Title

1 05580084 Dec 3 1996 280/735 System and method for controlling
Sep 12 1995 ++vehicle++ ++safety++ ++device++

Inventor: Gioutsos; Tony

Assignee: Artistic Analytical Methods, Inc.

Abstract:

A system and method for controlling actuation of a ++vehicle++
++safety++ ++device++ in response to an impact to a first portion of the
++vehicle++ includes a ferromagnetic element mechanically coupled with the
first portion of the ++vehicle++ so as to receive elastic strain waves
generated as a result of plastic deformation of the first portion of the
++vehicle++. A permanent ++magnet++ is mounted on the ++vehicle++ adjacent
to the ferromagnetic element so that the ferromagnetic element itself

influences the magnetic field. An induction coil is also mounted on the ++vehicle++ so as to fall within the magnetic field generated by the ++magnet++. Upon plastic deformation of the first portion of the ++vehicle++, the ensuing elastic strain waves elastically deform the ferromagnetic element to vary its ferromagnetic properties and, in turn, alter the magnetic field so as to induce an electromotive force voltage in the induction coil. A signal processor receives the electromotive force voltage induced in the induction coil by the varying magnetic field. The signal processor actuates the ++safety++ ++device++ when the electromotive force voltage, or an appropriate measure derived from the electromotive force voltage, exceeds a predetermined threshold.

- 2 05570903 Nov 5 1996 280/735 Occupant and infant ++seat++
 Feb 21 1995 detection in a ++vehicle++
 supplemental restraint system

Inventor: Meister; Jack B. et al.

Assignee: Echlin, Inc.

Abstract:

An automotive ++vehicle++ supplemental restraint system that includes an ++air++ ++bag++ positioned within the ++vehicle++ opposite the passenger side of the front ++seat++, and electronics coupled to one or more impact sensors for activating the ++air++ ++bag++ in the event of a ++vehicle++ impact. Occupancy sensors are provided at the passenger ++seat++ for sensing ++seat++ occupancy and inhibiting activation of the ++air++ ++bag++ when the ++seat++ is either unoccupied or occupied by a rear-facing infant ++seat++. System status is displayed to a ++vehicle++ operator, and the operator is provided with an opportunity to override the occupancy sensors and enable activation of the ++air++ ++bag++.

- 3 05605348 Feb 25 1997 280/735 Method and apparatus for sensing a
 Nov 3 1993 rearward facing child ++seat++

Inventor: Blackburn; Brian K. et al.

Assignee: TRW Vehicle Safety Systems Inc.

Abstract:

An apparatus (20) for preventing actuation of an ++air++ ++bag++ restraining ++device++ (90) of a ++vehicle++ includes a sensor (24, 26) that senses the presence of a child restraining ++seat++ (40) on an occupant ++seat++ (30) of the ++vehicle++. A controller (22) is operatively connected to the sensor (24, 26) and to the ++air++ ++bag++ restraining ++device++ (90) for controlling actuation of the ++air++ ++bag++ and preventing actuation of the ++air++ ++bag++ when the sensor (24, 26) senses the child restraining ++seat++ (40) on the occupant ++seat++ (30).

- 4 05482314 Jan 9 1996 280/735 Automotive occupant sensor system

Apr 12 1994

and method of operation by sensor
fusion

Inventor: Corrado; Anthony P. et al.

Assignee: Aerojet General Corporation

Abstract:

A system for sensing the presence, position and type of an occupant in a passenger ++seat++ of a ++vehicle++, as well as for sensing the presence of a rear-facing child ++seat++ therein, for use in enabling or disabling a related airbag activator. The sensor system employs sensor-fusion, a process of combining information provided by two or more sensors, each of which "sees" the world in a unique sense. In a preferred embodiment, occupancy sensor samples two detectable properties, a first being a thermal signature and associated motion, and a second is acoustically measured distance and the associated motion. Infrared sensor inputs and an ultrasonic sensor input are combined in a microprocessor circuit by means of a sensor fusion algorithm to produce an output signal to the ++air++ ++bag++ controller. The output signal results from preselected confidence weighing for feature parameters generated by the two sensors and upon a fusion process which ultimately makes a decision which is extremely reliable. The sensor fusion matrix processes the sensor outputs in a decision making operation which includes weighing inputs to guarantee reliability. All sensor outputs, along with calibration data, initial conditions and historical reference data are considered in the process of making a decision of whether or not to deploy the passenger-side ++air++ ++bag++ in a collision.

5 05324071 Jun 28 1994 280/730.1 ++Air++ ++bag++ system for an
Nov 14 1991 automotive ++vehicle++

Status: certificate of correction has been issued

Inventor: Gotomyo; Yasuo et al.

Assignee: Mazda Motor Corporation

Abstract:

The head rest is detachably mounted to the ++seat++ back of the front ++seat++ and the ++air++ ++bag++ unit with an ++air++ ++bag++ mounted therein is mounted to the head rest. The ++air++ ++bag++ is expanded toward the passenger seated on the rear ++seat++ in response to an explosion signal from the control unit into which signals are entered from impact sensors. The ++air++ ++bag++ is so disposed as to expand only when the passenger is seated on the rear ++seat++. The posture and position of the ++air++ ++bag++ unit is adjusted in association with the movement or displacement of the front ++seat++ to which the ++air++ ++bag++ is mounted, thereby improving the ability of the expanded ++air++ ++bag++ to confine the passenger seated on the rear ++seat++ and protecting the passenger in a safer fashion. Further, the ++air++ ++bag++ unit is mounted to the head rest of the front ++seat++, so that the ++air++ ++bag++ can be

exchanged with ease and at a cheap cost without needing to exchange the front ++seat++ itself.

6 05161820 Nov 10 1992 280/730.1 Inflatable ++air++ ++bag++
May 21 1991 ++safety++ ++device++ for motor
vehicles

Inventor: Vollmer; Elmer

Assignee: Audi AG

Abstract:

An improved inflatable passenger side ++air++ ++bag++ ++safety++ ++device++ for motor vehicles for detecting the presence or absence of a passenger positioned on or in front of a particular passenger ++vehicle++ ++seat++. The ++safety++ ++device++ comprises a control unit for the intelligent triggering of the propellant charge for the ++air++ ++bag++ when a triggering event is detected, such as an impending collision, and the presence of a passenger is also detected. The control unit receives signals from a pair of switches, electrically connected in parallel to one another, including a first ++seat++ switch for detecting the presence or absence of a sitting passenger and a second foot switch for detecting the presence or absence of a standing, kneeling, or sitting passenger in the region in front of the ++vehicle++ ++seat++. In the preferred embodiment both switches are flat, contact type switches, each having a broad surface area and are activated when subjected to the ++weight++ of a passenger from above. An acceleration sensor is also connected to the control unit for signaling the event of an impending collision. In an alternate embodiment the foot switch is a condenser-type switch in the form of a metallic screen interwoven within the floor carpet and detects fluctuations in the magnetic and electric fields corresponding to the presence or absence of a passenger positioned over the floor carpet. The ++air++ ++bag++ associated with the ++vehicle++ ++seat++ is caused to be activated during a triggering event if either of the seats switch and/or foot switch are activated by a passenger.

7 05466001 Nov 14 1995 280/730.1 ++Air++ ++bag++ system for an
Jun 28 1994 automotive ++vehicle++

Status: certificate of correction has been issued

Inventor: Gotomyo; Yasuo et al.

Assignee: Mazda Motor Corporation

Abstract:

The head rest is detachably mounted to the ++seat++ back of the front ++seat++ and the ++air++ ++bag++ unit with an ++air++ ++bag++ mounted therein is mounted to the head rest. The ++air++ ++bag++ is expanded toward the passenger seated on the rear ++seat++ in response to an explosion signal from the control unit into which signals are entered from impact sensors. The ++air++ ++bag++ is so disposed as to expand only when

the passenger is seated on the rear ++seat++. The posture and position of the ++air++ ++bag++ unit is adjusted in association with the movement or displacement of the front ++seat++ to which the ++air++ ++bag++ is mounted, thereby improving the ability of the expanded ++air++ ++bag++ to confine the passenger seated on the rear ++seat++ and protecting the passenger in a more safe fashion. Further, the ++air++ ++bag++ unit is mounted to the head rest of the front ++seat++, so that the ++air++ ++bag++ can be exchanged with ease and at cheap costs without exchanging the front ++seat++ itself.

8 05234228 Aug 10 1993 280/734 ++Air++ ++bag++ apparatus
Jan 3 1992

Inventor: Morota; Makie et al.

Assignee: Honda Giken Kogyo Kabushiki Kaisha

Abstract:

An ++air++ ++bag++ for a ++vehicle++ is contained, respectively, in a steering wheel which is disposed in front of a driver's ++seat++ and in a dashboard which is disposed in front of a passenger's ++seat++. When a ++seat++ switch has detected that there is no passenger seated in the passenger's ++seat++, the inflation of the ++air++ ++bag++ for the passenger's ++seat++ is prohibited. Two impact sensors for detecting the longitudinal and lateral impact forces are provided. When that direction of the impact force which is obtained by the two sensors deviates towards the passenger's ++seat++ beyond a predetermined angle, the prohibition of inflation of the ++air++ ++bag++ for the passenger's ++seat++ is cancelled. When the ++vehicle++ is collided at a portion which is deviated towards the passenger's ++seat++, the ++air++ ++bag++ for the passenger's ++seat++ is also inflated to alleviate the movement of the driver towards the passenger's ++seat++. Instead of detecting the direction of the impact force by the two impact sensors, a switch-type acceleration sensor which is switched on when the impact force towards the passenger's ++seat++ is above a predetermined value may also be used so that the ++air++ ++bag++ for the passenger's ++seat++ can be inflated.

9 05439249 Aug 8 1995 280/735 ++Vehicle++ occupant restraint
Dec 5 1994 system including occupant position
sensor mounted in ++seat++ back

Inventor: Steffens, Jr.; Charles E. et al.

Assignee: TRW Vehicle Safety Systems Inc.

Abstract:

A ++vehicle++ occupant restraint system (10) comprises a ++vehicle++ ++seat++ (12) including a ++seat++ bottom (14), a ++seat++ back (16), and an occupant position sensor (20) mounted in the ++seat++ back. The occupant position sensor is located about sixteen inches above a flat plane (99) of the ++seat++ bottom of the ++vehicle++ ++seat++ and below a

head rest (11) of the ++vehicle++ ++seat++. The ++seat++ back of the ++vehicle++ ++seat++ includes foam material (40) to which the occupant position sensor is secured. The ++seat++ back of the ++vehicle++ ++seat++ also includes fabric material (41) which covers the occupant position sensor secured to the foam material. The fabric material and the foam material of the ++seat++ back cooperate to protect the occupant position sensor and hide the occupant position sensor from view. The occupant position sensor senses the position of an occupant in the ++vehicle++ ++seat++ and provides a position signal (21) functionally related to the position of the occupant in the ++vehicle++ ++seat++. An occupant restraint (17) actuates in response to a deceleration signal (31) indicative of sudden ++vehicle++ deceleration above a predetermined threshold such as occurs in a ++vehicle++ collision. When actuated, the occupant restraint restrains the occupant in the ++vehicle++ ++seat++. The operation of the occupant restraint is controlled as a function of the position signal from the occupant position sensor.

10 05186494 Feb 16 1993 280/806 Passenger restraint system for use
Jul 11 1991 in automotive ++vehicle++

Inventor: Shimose; Yoshifumi

Assignee: Nissan Motor Co., Ltd.

Abstract:

A passenger restraint system for use in an automotive ++vehicle++ comprises a collision detecting sensor for detecting a collision of the ++vehicle++, a retractor with a preloader for providing a tension to a ++seat++ belt in response to a signal from the collision detecting sensor, and an ++air++ ++bag++ ++device++. The ++air++ ++bag++ ++device++ includes a ++bag++ which is broken in response to the signal from the collision detecting sensor, thus forming a clearance between a passenger and a ++seat++ back.

11 04620721 Nov 4 1986 280/735 Automatic passenger ++safety++
Apr 12 1985 system

Inventor: Scholz; Hansjurgen et al.

Assignee: Daimler-Benz Aktiengesellschaft

Abstract:

A passive restraining system for an automobile provides a means, in the event of an automobile accident, for inflating an ++air++ ++bag++ system on the driver's side at a lower threshold speed if the driver is not wearing a ++seat++ belt, and at a higher threshold speed if the driver is wearing a ++seat++ belt. This system, however, allows a second ++air++ ++bag++ system to inflate for protecting the front ++seat++ passenger in the event of an accident, at the lower threshold speed, regardless of whether the passenger is wearing a ++seat++ belt or not.

12 05525843 Jun 11 1996 307/9.1 ++Seat++ occupant detection system
Feb 14 1994

Inventor: Howing; Mats

Assignee: AB Volvo

Abstract:

A method and system for detecting the presence of an occupant on a ++vehicle++ ++seat++ is disclosed. The ++vehicle++ ++seat++ is provided with at least a pair of electrodes which are connected to a detection circuit for detecting a change in capacitance between the electrodes. If the detection circuit detects a sufficiently large change in capacitance, a positive detection signal is produced. To reduce the risk of interference, the electrodes of the detection circuit are substantially insulated from the chassis of the ++vehicle++ and its electrical system when the detection circuit is in an active condition.

13 05454591 Oct 3 1995 280/735 Method and apparatus for sensing a
Jun 21 1994 rearward facing child restraining
++seat++

Inventor: Mazur; Joseph F. et al.

Assignee: TRW Vehicle Safety Systems Inc.

Abstract:

An apparatus (20) for preventing actuation of an ++air++ ++bag++ restraining ++device++ (25) of a ++vehicle++ includes a ++weight++ sensor (36), a distance sensor (42), and a ++seat++ belt payout sensor (66). A controller (22) is operatively connected to the sensors (36, 42, 66) and to the ++air++ ++bag++ restraining ++device++ (25). The controller (22) prevents actuation of the ++air++ ++bag++ when the sensors (36, 42, 66) sense a rearward facing child ++seat++ (46) on the occupant ++seat++ (40) by sensing a ++weight++ of an object less than a predetermined amount, a distance to an object on the ++seat++ (40) less than a predetermined amount, and a ++seat++ belt payout of greater than a predetermined amount.

14 05531472 Jul 2 1996 280/735 Apparatus and method for
May 1 1995 controlling an occupant restraint
system

Inventor: Semchena; John H. et al.

Assignee: TRW Vehicle Safety Systems, Inc.

Abstract:

Apparatus and method for controlling an occupant restraint system in a ++vehicle++ (10) comprises storing in a ROM memory (220) a block of image data representative of a viewing field within the ++vehicle++ (10). The viewing field includes an unoccupied ++vehicle++ ++seat++ (18) located in the occupant compartment (12) of the ++vehicle++. A new block of image data is obtained which is representative of the viewing field with an occupant (202) on the ++seat++ (18). This image data is obtained with an

image sensor (200), such as a CCD sensor, mounted in the ++vehicle++ (10) for viewing the field. The new block of image data is compared with the stored block of image data by a controller (30) to obtain the occupant's size and/or position in the ++vehicle++. The controller (30) provides a control signal having a value which is a function of the comparison. A restraint regulator (120), such as a vent valve, responds to the control signal for controlling the occupant restraint system.

15 05411289 May 2 1995 280/735 ++Air++ ++bag++ system for a motor
Oct 29 1993 ++vehicle++

Status: certificate of correction has been issued

Inventor: Smith; Bradley W. et al.

Assignee: Morton International, Inc.

Abstract:

An ++air++ ++bag++ system is provided for use in a motor ++vehicle++. The ++air++ ++bag++ system includes at least one ++air++ ++bag++ module. A multiple level gas generation source is coupled to the ++air++ ++bag++ module for generating a selected gas generation level applied to the ++air++ ++bag++ module. An electronic control unit controls the operation of multiple level gas generation source. At least one temperature sensor is coupled to the electronic control unit for sensing ambient temperature. At least one ++seat++ belt sensor is coupled to the electronic control unit for sensing ++seat++ belt usage. An acceleration sensor is coupled to the electronic control unit for sensing deceleration during a crash. The electronic control unit is responsive to a combination of sensed inputs from the temperature sensor, the ++seat++ belt sensor and the acceleration sensor for determining both an optimum gas generation level and inflation sequence times for controlling the multiple level gas generation source.

16 05251931 Oct 12 1993 280/730.1 ++Safety++ apparatus
Mar 9 1992

Status: certificate of correction has been issued

Inventor: Semchena; John H. et al.

Assignee: TRW Vehicle Safety Systems Inc.

Abstract:

A ++safety++ apparatus includes an ++air++ ++bag++ 32 which is inflatable to an extended condition disposed between a hip 38 of a person 12 seated on a ++vehicle++ ++seat++ 14 and a door 16 of the ++vehicle++. An inflator assembly 22 provides gas to inflate the ++air++ ++bag++. The inflator assembly 22 and the ++air++ ++bag++ 32 are mounted on the ++vehicle++ ++seat++ 14 for movement with the ++vehicle++ ++seat++ relative to the body of the ++vehicle++.

17 05205582 Apr 27 1993 280/735 Occupant protective system
Aug 26 1991

Inventor: Shiga; Masayuki et al.

Assignee: Honda Giken Kogyo Kabushiki Kaisha

Abstract:

An occupant protective system for an automotive ++vehicle++ having a driver's ++seat++ and an assistant driver's ++seat++. A magnitude of detected deceleration is compared with first and second threshold values, the second threshold value being greater than the first threshold value. If the magnitude of detected deceleration exceeds the second threshold value, both of a first ++air++ ++bag++ provided for the driver's ++seat++ and a second ++air++ ++bag++ provided for the assistant driver's ++seat++ are caused to be inflated even when the assistant driver's ++seat++ is not occupied, whereas if the magnitude of detected deceleration exceeds the first threshold value but does not exceed the second threshold value, the first ++air++ ++bag++ for the driver's ++seat++ alone is caused to be inflated when the assistant driver's ++seat++ is not occupied.

18 05474327 Dec 12 1995 280/735 ++Vehicle++ occupant restraint
Jan 10 1995 with ++seat++ pressure sensor

Inventor: Schousek; Theresa J.

Assignee: Delco Electronics Corporation

Abstract:

An ++air++ ++bag++ restraint system is equipped with ++seat++ occupant sensing apparatus for a passenger ++seat++ which detects both infant seats and adults and distinguishes between rear and forward facing infant seats. ++Air++ ++bag++ deployment is inhibited when an occupied rear facing infant ++seat++ is present. The sensing apparatus comprises eight variable resistance pressure sensor in the ++seat++ cushion. The response of each sensor to occupant pressure is monitored by a microprocessor which calculated total ++weight++ and ++weight++ distribution. The ++weight++ is used to discriminate between an occupied infant ++seat++, an adult and no occupant. The ++weight++ distribution is used to distinguish between forward and rear facing infant seats. Another embodiment uses the occupant sensing along with ++seat++ belt fastening detection to indicate when a ++seat++ is occupied and the belt is not fastened.

19 05612876 Mar 18 1997 364/424.055 ++Device++ for detecting ++seat++
Mar 3 1995 occupancy in a motor ++vehicle++

Inventor: Zeidler; Falk et al.

Assignee: Mercedes-Benz AG

Abstract:

A ++device++ for detecting ++seat++ occupancy in a motor ++vehicle++, especially for inhibiting airbag release when a ++seat++ is unoccupied, is provided. A ++seat++ occupancy sensor has a front sensing region and a rear sensing region, which can be evaluated separately. In this way, it is possible to determine whether the front ++seat++ passenger is in a sitting

position close to the front ++seat++ edge of the ++seat++ cushion, which reduces the protective effect of the airbag. This can possibly be indicated visually or audibly. As a further measure, the inhibiting of an airbag release can be provided in the case of an incorrect sitting position. The ++seat++ occupancy sensor can be a resistive membrane pressure sensor.

20 05400487 Mar 28 1995 280/735 Variable inflation system for
Jan 14 1994 ++vehicle++ ++safety++ restraint

Inventor: Gioutsos; Tony et al.

Assignee: Automotive Systems Laboratory, Inc.

Abstract:

An inflation system (10) for a gas-operated ++vehicle++ occupant ++safety++ restraint, such as an ++air++ ++bag++ (12), comprises an accelerometer (14) and an infrared transceiver (20) for receiving ++vehicle++ acceleration information (a) and occupant position information (x), respectively, for use by a processor (22) in selecting which of a plurality of gas generators (28) will be individually initiated, at selected actual times to fire, in a selected order, to provide optimal protection to the occupant in the event of a ++vehicle++ crash or marked ++vehicle++ deceleration.

21 05520263 May 28 1996 180/270 Active ++seat++ belt control
Dec 9 1994 system with ++seat++ belt in-use
sensor

Inventor: Suran; Michael J. et al.

Assignee: Chrysler Corporation

Abstract:

A control system for controlling the locking and unlocking of the ++seat++ belt retractor used in a ++vehicle++ in response to the state of the vehicle's doors, the state of the vehicle's ignition switch, and the state of use of the vehicle's ++seat++ belts.

22 05528698 Jun 18 1996 382/100 Automotive occupant sensing
Mar 27 1995 ++device++

Inventor: Kamei; John H. et al.

Assignee: Rockwell International Corporation

Abstract:

A ++vehicle++ occupant ++safety++ system includes an image sensor and processor that provides a classification of the occupancy status of the passenger ++seat++ area to determine whether an airbag should be deployed. The image processing system includes a photodetector array sensor and lens assembly with image processing electronics to acquire a machine vision representation of the passenger ++seat++ area within a ++vehicle++. The objects in the field of view are then discriminated to determine whether a

rear-facing child carrier is located in the passenger ++seat++, such that the passenger-side airbag can be disabled.

23 05610817 Mar 11 1997 364/424.056 Passenger restraint system with an
Feb 8 1993 electronic crash sensor

Inventor: Mahon; Geoffrey L. et al.

Assignee: Breed Automotive Technology, Inc.

Abstract:

An electronic accelerometer is used to generate an acceleration signal for a passenger restraint system in a motor ++vehicle++. The electrical signal is processed by emulating an electromechanical sensor to ++detect++ crashes. The electrical signal may also be differentiated to obtain a jerk signal also used to ++detect++ abnormal accelerations.

24 05602734 Feb 11 1997 364/424.055 Automobile ++air++ ++bag++ systems
Sep 23 1994

Inventor: Kithil; Philip W.

Assignee: Advanced Safety Concepts, Inc.

Abstract:

A roof-mounted ++air++ ++bag++ system, having a passenger position sensor array of capacitive coupling passenger position sensors, to determine position and motion of a passenger by triangulation, from microprocessor analysis of distances of the passenger to the various sensors of the array and analysis of the changes of said distances with time; the combination of a three-axis ++vehicle++ rollover sensor and microprocessor analysis of the output of said sensor, to both block ++air++ ++bag++ deployment in the event that said sensor output indicates a ++vehicle++ rollover, and also confirm a crash event by sensing rapid angular ++vehicle++ acceleration; a microprocessor to analyze signals from the passenger position sensor array, and from the rollover sensor, and to order ++air++ ++bag++ deployment when it would be helpful but not otherwise; an ++air++ ++bag++ with an inflated configuration having two principal chambers, one inflating downward along the windshield and the other inflated to the rear of the first, with a reentrant slot-shaped space between them which can accommodate a forwardly positioned passenger, such as an infant in a rear facing car ++seat++, which inflation configuration can reduce the likelihood of injury to said passenger resulting from the ++air++ ++bag++ deployment; and means in the microprocessor for brief recording of passenger motion data from the passenger position sensor array, by the microprocessor, for possible later use in crash analysis, which may lead to ideas for improvement of design of the ++vehicle++ or ++air++ ++bag++ system.

25 05285188 Feb 8 1994 340/436 ++Vehicle++ collision detecting
May 29 1992 system

Inventor: Yoshida; Ryouichi
Assignee: Takata Corporation
Abstract:

A ++vehicle++ collision detecting system includes an impact sensor, a distance sensor for detecting a distance to an obstacle, a differential circuit for differentiating the distance to provide a relative speed, and a microcomputer for computing a distance after a time, based on the detected distance and the relative speed, and determining whether the computed distance becomes zero within a predetermined time. If the calculated distance becomes zero within the predetermined time, a collision unavoidable signal is generated. A collision signal or ++air++ ++bag++ activating signal is then generated as soon as an impact is detected by the impact detector.

26 05468014 Nov 21 1995 280/735 Motor ++vehicle++ ++seat++ with
Dec 6 1993 child's ++safety++ ++seat++
attachment

Inventor: Gimbel; Hans-Peter et al.
Assignee: General Motors Corporation
Abstract:

For a motor ++vehicle++ with at least one passenger ++seat++ which has attachment devices for a child's ++safety++ ++seat++ that can be attached to it and at least one ++air++ ++bag++ in the region of the passenger ++seat++, the invention proposes that at least one attachment ++device++ for the child's ++safety++ ++seat++ be provided with a sensor for deactivating the ++air++ ++bag++ which reacts to the attachment of the child's ++safety++ ++seat++. This assures that during the transportation of the child in the child's ++safety++ ++seat++, the ++air++ ++bag++ in front of the child's ++safety++ ++seat++ is deactivated.

27 05490575 Feb 13 1996 180/270 Active ++seat++ belt control
Dec 9 1994 system with built in inertia
sensor

Inventor: Suran; Michael J. et al.
Assignee: Chrysler Corporation
Abstract:

Control system for controlling the locking and unlocking of ++seat++ belt retractors in response to the opened/closed state of the ++vehicle++ doors and also the on/off state of the ignition switch.

28 04655505 Apr 7 1987 297/284.6 Pneumatically controlled ++seat++
Nov 18 1985 for ++vehicle++

Status: certificate of correction has been issued
Inventor: Kashiwamura; Takayoshi et al.
Assignee: NHK Spring Co., Ltd.

Abstract:

Disclosed is a ++seat++ for ++vehicle++ which is pneumatically controlled for a desired body pressure distribution of a person seated in the ++seat++, comprising: a plurality of ++air++ bags embedded in a ++seat++; an ++air++ pressure source; a single first conduit connected the ++air++ pressure source at its one end and branched off into a plurality of second conduits leading to the ++air++ bags at its other end; a plurality of on-off valves each provided in the corresponding one of the second conduits leading to the ++air++ bags; an exhaust valve connected to the first conduit at its one end and to the atmosphere at its other end; a single pressure sensor provided in the first conduit; and control means connected to the ++air++ pressure source, the on-off valves, the exhaust valve and the pressure sensor; the control means comprising means for storing predetermined ++air++ pressure values for the ++air++ bags, means for selectively opening and closing the on-off valves and the exhaust valve, and means for preventing the valve opening and closing means for opening the valves according to the result of comparison between the output from the pressure sensor and predetermined ++air++ pressure values. Thus, the structure for ++air++ pressure control is simplified and the body pressure distribution of the passenger may be adapted to the acceleration of the ++vehicle++ and other conditions.

29 05608270 Mar 4 1997 307/10.1 ++Vehicle++ ++safety++ restraint
Apr 17 1995 system with linear output impact
sensor

Inventor: Meister; Jack B.

Abstract:

A ++vehicle++ restraint system that includes an impact sensor for sensing a ++vehicle++ impact to provide an electrical impact signal, an occupant restraint such as an ++air++ ++bag++ to restrain motion of a ++vehicle++ occupant, and an electronic control circuit responsive to the impact signal for operating the occupant restraint. The impact sensor includes a permanent ++magnet++ axially slidable within a linear cavity and resiliently biased to one end of the cavity, such that ++vehicle++ impact forces on the sensor urge the ++magnet++ to slide axially toward the opposing end of the cavity against the biasing forces. A magnetic sensor is disposed adjacent to the cavity and is characterized by providing the electrical impact signal as an analog electrical signal that varies in magnitude as a continuous monotonic function of axial position of the ++magnet++ within the cavity. The electronic control circuit is responsive to the impact signal for analyzing magnitude, slope and duration of the impact signal in order to predict necessity for activating the restraint system, and activating the restraint system when the magnitude slope and duration of the impact signal meet predetermined signal conditions or criteria.

30 04900079 Feb 13 1990 296/65.1 Control system for ++vehicle++
Apr 26 1988 equipment

Status: expired - failure to pay first maintenance fee

Inventor: Obara; Hideo et al.

Assignee: Nissan Motor Co., Ltd.

Abstract:

A system which automatically moves a drivers ++seat++ between one of a plurality of preselected driving positions and a position wherein ingress and egress is facilitated is inhibited when a passenger is seated on the ++seat++ behind the drivers one.

31 03775742 Nov 27 1973 340/938 ++VEHICLE++ DETECTION SYSTEM
Sep 18 1972

Inventor: Koerner; Ralph J. et al.

Assignee: Canoga Controls Corporation

Abstract:

A system for detecting vehicles and suitable for use in conjunction with other equipment for traffic monitoring and control. The system includes one or more sensors capable of measuring and indicating magnetic field intensity and a central electronic unit which interprets the output signals produced by the sensors. The sensors preferably comprise flux gate magnetometers. The system can be operated in either of two modes; i.e. a "between lanes" mode (I) in which each sensor is mounted adjacent to a lane being monitored and an "in lane" mode (II) in which each sensor is mounted in a lane being monitored. In mode I the central unit produces a ++detect++ output signal in response to a magnetic field intensity reduction, as would be caused by a ++vehicle++ passing in a monitored lane, which exceeds a first threshold level. In mode II, the ++detect++ output signal is produced in response to a sensed magnetic field intensity increase, as would be caused by a ++vehicle++ passing in a monitored lane, which exceeds a second threshold level. Both the first and second threshold levels are established as some percentage of the ambient magnetic field intensity. A bias signal, developed as a function of the sensed ambient field intensity, is fed back to the sensors to null their output under quiescent conditions, thus enabling the system to automatically adapt to different ambient field conditions. Time delay means are incorporated in the feed back loop producing the bias signal to prevent the system from adapting to short term magnetic field changes.

32 05541842 Jul 30 1996 364/424.055 System and method for adjusting
Aug 31 1994 accumulated crash-discrimination
measures based on crash progress

Inventor: Gioutsos; Tony et al.

Assignee: Automotive Systems Laboratory, Inc.

Abstract:

A system and method for controlling actuation of a ++vehicle++ passenger ++safety++ ++device++ in response to an event possibly requiring actuation of the ++safety++ ++device++, wherein a first measure calculated from received ++vehicle++ acceleration information is weighted by a second measure, such as a modified ++vehicle++ velocity measure, which is itself evaluative of the relative progress of the event. The weighted first measure is thereafter accumulated and compared to a threshold value, with the ++safety++ ++device++ being actuated when the resulting accumulated weighted first measure exceeds the threshold value.

33 05338063 Aug 16 1994 280/735 ++Vehicle++ ++safety++ ++device++
Mar 4 1993 control apparatus

Inventor: Takeuchi; Kunihiro et al.

Assignee: Airbag Systems Company, Ltd.

Abstract:

In a control apparatus that activates a preloader ++device++ and after a timing delay an ++air++ ++bag++ ++device++ when a ++vehicle++ collision is detected, the apparatus has a detector for detecting whether or not a seatbelt is buckled, and a timing signal for activating the ++air++ ++bag++ ++device++ is generated without the timing delay if the seatbelt is not buckled, whereby the ++air++ ++bag++ ++device++ can be activated with a timing appropriate to the condition present at the time.

34 03729059 Apr 24 1973 180/269 ++SEAT++ BELT ++SAFETY++ SYSTEM
Oct 12 1971 FOR MOTOR VEHICLES

Inventor: Redmond; Benjamin

Assignee: Chenkin; Leila R.

Abstract:

A ++seat++ belt ++safety++ system for motor vehicles has all of its ++seat++ belts as elements of a common electrical circuit operative to control the drive system of the ++vehicle++ and to prevent placing the ++vehicle++ in motion, while permitting running of the vehicle's engine with the ++vehicle++ at rest, unless and until the ++seat++ belt in each and every occupied ++seat++ of the ++vehicle++, is buckled. To prevent circumvention of this ++safety++ feature, as by a passenger buckling the belt before occupying his ++seat++, each ++seat++ belt incorporates electro-mechanical means operative to prevent the belt from being buckled unless and until the ++seat++ is occupied.

35 03841654 Oct 15 1974 280/733 ++VEHICLE++ ++SAFETY++ SYSTEM
Sep 21 1972

Inventor: Lewis; Donald J.

Assignee: Allied Chemical Corporation

Abstract:

A ++vehicle++ ++safety++ system is provided which comprises a ++seat++

belt having an inflatable section which is normally maintained in an uninflated state and adapted to be positioned about a wearer when the wearer is seated in a ++seat++ within the ++vehicle++, sensing means actuatable in response to the occurrence of a preselected condition of the ++vehicle++, and inflating means responsive to actuation of the sensing means and capable of inflating the inflatable section prior to any substantial forward motion of the ++seat++ belt wearer relative to his ++seat++ as a result of the preselected condition.

36 05446661 Aug 29 1995 364/424.055 Adjustable crash discrimination
Apr 15 1993 system with occupant position
detection

Status: certificate of correction has been issued

Inventor: Gioutsos; Tony et al.

Assignee: Automotive Systems Laboratory, Inc.

Abstract:

A method and system for discriminating motor ++vehicle++ crashes to actuate a ++safety++ restraint (10) utilizes an optical ++vehicle++ occupant position detector (12) to generate data (22) representative of the position of an occupant relative to fixed structure within the ++vehicle++. The data (22) is subsequently used by a signal processor/discrimination unit (26) as criteria for a parameter based crash discrimination analysis, and for adjusting parameters of the discrimination analysis, such as changing the discrimination threshold values. The occupant position data optimizes the discrimination analysis used in the system (10) due to the system's ability to customize the discrimination analysis in real time to match actual conditions of a ++vehicle++ occupant. Occupant position is determined by detecting the relative intensity, or average of scattering angles of a light beam (34) reflectively scattered by the occupant (24). An optical, low threshold safing sensor (40) can further be used to provide system calibration, discrimination of spurious occupant movement, and data representative of ++vehicle++ acceleration.

37 05314206 May 24 1994 280/801.1 Sliding ++seat++ ++safety++
Mar 1 1993 ++device++ in a ++vehicle++

Inventor: Vollmer; Elmar

Assignee: Audi AG

Abstract:

A ++seat++ adjustment latch, selectable at two different force levels, is attached to a slide adjustable ++seat++ in a motor ++vehicle++ equipped with a ++seat++ belt assembly, an inflatable ++air++ ++bag++, and a knee restraint. The ++seat++ adjustment latch is interlocked with the ++seat++ belt assembly of the ++seat++ such that when the ++seat++ belt is unfastened, the ++seat++ adjustment latch is set to release the

++vehicle++ ++seat++ in the event of a rapid deceleration or impact to the ++vehicle++ above a predetermined level of severity. When the ++seat++ belt is fastened, the ++seat++ latch is set in its firmest possible retention setting and operates such that the inertia and kinetic energy forces of the ++seat++ and the occupant seated thereon will not move the ++seat++ forward in response to a severe frontal collision. In a preferred embodiment, the ++seat++ adjustment latch includes a shearing element configured as a tubular bolt for retaining the slide adjustable ++vehicle++ ++seat++ to the ++seat++ rails. The tubular bolt is selectively reinforced at a shear region by a moveable insert piece, the movement of which is influenced mechanically by the fastened/unfastened condition of the ++seat++ belt. In an alternate embodiment, the movement of the insert piece is controlled electrically.

38 03732944 May 15 1973 180/274 AUTOMATIC VACUUM RESTRAINT
Apr 12 1971 APPARATUS

Inventor: Kendall; Giles A.

Assignee: Menasco Manufacturing Company

Abstract:

An automatic vacuum restraint apparatus to restrain the passengers of a ++vehicle++ wherein sensors are employed around the periphery of the ++vehicle++ structure to be capable of denoting an unstable condition, the sensors effecting actuation of the vacuum system within the ++vehicle++ to draw a vacuum between the body of each passenger and its respective passenger ++seat++.

39 05492361 Feb 20 1996 280/730.1 Side airbag apparatus
Jan 26 1995

Inventor: Kim; Ki I.

Abstract:

Airbag apparatus mounted, in a first embodiment, in the ++vehicle++ arm rest and having the capability of deploying front and side airbags at or prior to a collision. In a second embodiment, the ++vehicle++ arm rest is furnished only with a front airbag. In a third embodiment, an airbag system is mounted to the ++vehicle++ arm rest positioned between the driver and passenger seats. In a fourth embodiment, the airbag is positioned in the bottom of the ++vehicle++ ++seat++ and in a fifth embodiment, the airbag system is mounted in the cover for the ++vehicle++ recliner mechanism.

40 05564736 Oct 15 1996 280/730.2 Side airbag apparatus
Sep 15 1995

Inventor: Kim; Ki I.

Abstract:

Airbag apparatus mounted, in a first embodiment, in the ++vehicle++

arm rest and having the capability of deploying front and side airbags at or prior to a collision. In a second embodiment, the ++vehicle++ arm rest is furnished only with a front airbag. In a third embodiment, an airbag system is mounted to the ++vehicle++ arm rest positioned between the driver and passenger seats. In a fourth embodiment, the airbag is positioned in the bottom of the ++vehicle++ ++seat++ and in a fifth embodiment, the airbag system is mounted in the cover for the ++vehicle++ recliner mechanism.

41 05333902 Aug 2 1994 280/733 Portable motor ++vehicle++
Nov 24 1993 ++safety++ airbag

Inventor: Hatfield; J. Paul

Abstract:

A portable airbag ++device++ for use in an automotive ++vehicle++ having passenger ++seat++ belts therein, the ++device++ comprising a housing having a projecting male buckle element and a female buckle receiving element for insertion between the two buckle elements of the ++seat++ belt system, the housing also including a source of compressed gas and a sensor for detecting the occurrence of a collision, a pouch extending along the passenger ++seat++ belt and including an inflatable airbag connected to the source of compressed gas, and a releasable fastener for securing the pouch to the passenger ++seat++ belt and positioning the pouch in front of a user, whereby upon occurrence of a collision, the sensor detects the collision and inflates the airbag.

42 05118134 Jun 2 1992 280/735 Method and apparatus for
Dec 14 1990 protecting motor ++vehicle++
occupants

Status: certificate of correction has been issued

Inventor: Mattes; Bernhard et al.

Assignee: Robert Bosch GmbH

Abstract:

In a process for protecting motor ++vehicle++ occupants, the acceleration of the motor ++vehicle++ is determined and ++safety++ means which protect the motor ++vehicle++ occupant are activated when a specified limiting acceleration value is exceeded. To optimally release the ++safety++ means, the sitting position of the motor ++vehicle++ occupant and/or the relative velocity of the occupant with respect to the passenger cabin of the motor ++vehicle++ are determined by position sensor using measuring techniques. The ++safety++ means are activated when the sitting position of the occupant deviates from a nominal position and/or the relative velocity of the occupant exceeds a specified limiting value.

43 03861710 Jan 21 1975 280/735 ++VEHICLE++ ++SAFETY++ SYSTEM
Nov 20 1972

Inventor: Okubo; Masanobu

Assignee: Fujitsu Ten Ltd.

Abstract:

A ++vehicle++ ++safety++ system for protecting a person in a ++vehicle++ from impact shock due to collision with an object comprises a gas ++bag++. An obstacle detecting sensor predicts a collision prior to such occurrence. An impact detecting sensor detects the shock of impact upon collision. The gas ++bag++ is actuated incrementally by incremental operation of the obstacle detecting sensor and the impact detecting sensor.

44 04742857 May 10 1988 152/418 Tire pressure sensor and ++air++
Oct 7 1986 supply to maintain desired tire
pressure

Status: expired - failure to pay first maintenance fee

Inventor: Gandhi; Shrikant A.

Assignee: Techni Guidance, Inc.

Abstract:

A system for detecting the ++air++ pressure in each wheel and for effecting inflation or deflation in each wheel while the ++vehicle++ is operating including a controller (30) and a high pressure reservoir (34) mounted on each wheel. Each controller includes a ++magnet++ (45) that is positioned responsive to the pressure in the associated tire and a stationarily mounted solenoid detector (32) senses the position of the ++magnet++ and generates a signal which is fed to a data processor (97) for the generation of an output signal to the ++vehicle++ operator indicating the pressure in the tire. Additionally, through actuation of the control, a current is passed through a coil (62) on the solenoid detector to actuate the ++magnet++ (45) in an individual wheel for opening a valve and allowing ++air++ to flow through the tube (39) into the tire for raising the tire pressure, or to allow the exhaust of ++air++ to lower the tire pressure.

45 05451094 Sep 19 1995 297/216.17 ++Seat++ and occupant restraint
Jun 27 1994 system

Status: certificate of correction has been issued

Inventor: Templin; Harry W. et al.

Assignee: Indiana Mills & Manufacturing, Inc.

Abstract:

A restraint system for moving a ++vehicle++ ++seat++ and occupant toward the ++vehicle++ floor. A fluid cylinder pivotally mounted to the floor has an extendable piston rod connected to a linkage mounted to the ++vehicle++ ++seat++. A three point belt assembly mounted to the ++seat++ is connected to the cylinder rod. Retraction of the cylinder rod pretensions or tightens the three point buckle assembly and subsequently

moves the ++seat++ towards the ++vehicle++ floor.

46 05568939 Oct 29 1996 280/806 ++Seat++ belt retractor system
Apr 4 1994

Inventor: Blackburn; Brian K. et al.

Assignee: TRW Vehicle Safety Systems Inc.

Abstract:

A ++vehicle++ ++seat++ belt retractor system (10) includes two seats (16, 18) each having its own integrated ++seat++ belt webbing retractor (60, 112). Each retractor (60, 112) includes a locking assembly (76, 80) for blocking belt withdrawal in response to an electrical signal. At a central location in the ++vehicle++ spaced from the seats (16, 18), a sensor (24) is disposed for sensing ++vehicle++ deceleration exceeding a predetermined deceleration and for providing a control signal indicative thereof. An RF transmitter (42) is electrically connected with the sensor (24) and is actuatable in response to the control signal to transmit an RF signal. An RF receiver (100, 114) on each ++vehicle++ ++seat++ (16, 18) receives the RF signal and provides an output signal to actuate the locking assembly (76, 80) of the two ++seat++ belt retractors (60, 112). Each ++vehicle++ ++seat++ (16, 18) also has (a) a battery (98) for supplying electric power to actuate the locking assembly (76, 80) of the retractors (60, 112) and (b) a piezoelectric member (90) responsive to an occupant sitting on the ++seat++ for generating an electric current to charge the battery (96). In a second embodiment, a separate deceleration sensor (24a) is mounted on each ++vehicle++ ++seat++ for electrically actuating its associated retractor. In a third embodiment, the transmitted signal provides the power for actuating a ++vehicle++ occupant restraint (178).

47 05571253 Nov 5 1996 180/282 ++Seat++ belt retractor system
Jun 6 1995

Inventor: Blackburn; Brian K. et al.

Assignee: TRW Vehicle Safety Systems Inc.

Abstract:

A ++vehicle++ ++seat++ belt retractor system (10) includes two seats (16, 18) each having its own integrated ++seat++ belt webbing retractor (60, 112). Each retractor (60, 112) includes locking assembly (76, 80) for blocking belt withdrawal in response to an electrical signal. At a central location in the ++vehicle++ spaced from the seats (16, 18), a sensor (24) is disposed for sensing ++vehicle++ deceleration exceeding a predetermined deceleration and for providing a control signal indicative thereof. An RF transmitter (42) is electrically connected with the sensor (24) and is actuatable in response to the control signal to transmit an RF signal. An RF receiver (100, 114) on each ++vehicle++ ++seat++ (16, 18) receives the RF signal and provides an output signal to actuate the locking assembly

(76, 80) of the two ++seat++ belt retractors (60, 112). Each ++vehicle++ ++seat++ (16, 18) also has (a) a battery (98) for supplying electric power to actuate the locking assembly (76, 80) of the retractors (60, 112) and (b) a piezoelectric member (90) responsive to an occupant sitting on the ++seat++ for generating an electric current to charge the battery (96). In a second embodiment, a separate deceleration sensor (24a) is mounted on each ++vehicle++ ++seat++ for electrically actuating its associated retractor. In a third embodiment, the transmitted signal provides the power for actuating a ++vehicle++ occupant restraint (178).

48 04615561 Oct 7 1986 297/243 ++Vehicle++ ++seat++
May 14 1984

Inventor: Nomura; Kaoru

Assignee: Honda Giken Kogyo Kabushiki Kaisha

Abstract:

A ++vehicle++ ++seat++ is provided which comprises a ++seat++ cushion, a ++seat++ back and a side support fixed to each side of the ++seat++ back. Each of the side supports has a recess formed in the rear thereof to allow space for the knees of a passenger sitting in a rear ++seat++ behind the ++vehicle++ ++seat++ of the present invention. Further, a gap may be formed between the side surface of the middle portion of the ++seat++ back and the middle portion of the side support and at least one groove may be formed in the ++seat++ back. The groove opens into the gap so that ++air++ in the interior of the ++vehicle++ may flow through the groove by way of the gap thereby cooling the back of the passenger sitting in the ++seat++.

49 04985835 Jan 15 1991 364/424.056 Method and apparatus for
Jan 24 1989 activating a motor ++vehicle++
++safety++ system

Inventor: Sterler; Georg et al.

Assignee: Audi AG

Abstract:

An improved method for determining when an automotive ++safety++ system should be released. The improved method calculates and predicts the movement of dislocation of the driver from the seated position at a predetermined time in the future based upon signals provided from one or more acceleration sensors.

50 05323872 Jun 28 1994 180/271 Automotive ++vehicle++ equipped
Nov 12 1991 with ++air++ ++bag++ system

Inventor: Yabe; Takayuki

Assignee: NSK Ltd.

Abstract:

An automotive ++vehicle++ equipped with an ++air++ ++bag++ system includes an interior gas discharge ++device++ for communicating a

++vehicle++ interior to the outside upon detection of a vehicular collision and a forced ventilation ++device++ provided for operation upon detection of the vehicular collision.

Confidentiality:

EDS SPO considers this communication confidential. None of the information contained in this report is shared with any third parties.

Important Notice:

Please review this report and if the product is not satisfactory, notify EDS SPO within 24 hours. Please include the information in the Sales Order Summary as part of your message. This information is vital in identifying reports run by customers.

&